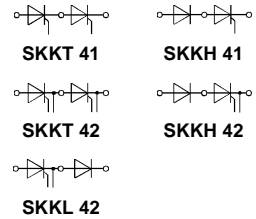


SEMPACK® 1 Thyristor/ Diode Modules

SKKT 41 **SKKH 41**
SKKT 42 **SKKH 42**
SKKT 42B **SKKL 42²⁾**



Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

- 1) Also available in SKKT 42 B configuration (case A 48).
2) SKKL 42 available on request
3) /20 E, /22 E max. 30 mA
4) See the assembly instructions

| V _{RRM} | V _{DRM} | (dv/dt) _{cr} | I _{TRMS} (maximum value for continuous operation) | | | |
|------------------|------------------|-----------------------|--|----------------------------|--------------|--------------|
| | | | 75 A | | | |
| V | V | V/μs | I _{TAV} (sin. 180; T _{case} = 68 °C) | | | |
| | | | 48 A | | | |
| 500 | 400 | 500 | – | – | SKKH 41/04 D | – |
| 700 | 600 | 500 | SKKT 41/06 D | SKKT 42/06 D | SKKH 41/06 D | SKKH 42/06 D |
| 900 | 800 | 500 | SKKT 41/08 D | SKKT 42/08 D ¹⁾ | SKKH 41/08 D | SKKH 42/08 D |
| 1300 | 1200 | 500 | SKKT 41/12 D | – | SKKH 41/12 D | – |
| 1300 | 1200 | 1000 | SKKT 41/12 E | SKKT 42/12 E ¹⁾ | SKKH 41/12 E | SKKH 42/12 E |
| 1500 | 1400 | 1000 | SKKT 41/14 E | SKKT 42/14 E ¹⁾ | SKKH 41/14 E | SKKH 42/14 E |
| 1700 | 1600 | 1000 | SKKT 41/16 E | SKKT 42/16 E ¹⁾ | SKKH 41/16 E | SKKH 42/16 E |
| 1900 | 1800 | 1000 | SKKT 41/18 E | SKKT 42/18 E ¹⁾ | SKKH 41/18 E | SKKH 42/18 E |
| 2100 | 2000 | 1000 | SKKT 41/20 E | SKKT 42/20 E ¹⁾ | – | – |
| 2300 | 2200 | 1000 | SKKT 41/22 E | SKKT 42/22 E ¹⁾ | – | – |

| Symbol | Conditions | SKKT 41 SKKH 41 | SKKT 42 SKKH 42B SKKL 42 |
|--|---|---|--|
| I _{TAV} | sin. 180; T _{case} = 74 °C T _{case} = 85 °C | 48 A 40 A | |
| I _D | B2/B6 T _{amb} = 45 °C; P 3/180 T _{amb} = 35 °C; P 3/180 F | 50 A/60 A 85 A/110 A | |
| I _{RMS} | W1/W3 T _{amb} = 35 °C; P 3/180 F | 110 A/3 x 85 A | |
| I _{TSM} | T _{vj} = 25 °C; 10 ms T _{vj} = 125 °C; 10 ms | 1 000 A 850 A | |
| i ² t | T _{vj} = 25 °C; 8,3 ... 10 ms T _{vj} = 125 °C; 8,3 ... 10 ms | 5 000 A ² s 3 600 A ² s | |
| t _{gd} t _{gr} | T _{vj} = 25 °C; I _G = 1 A; di _G /dt = 1 A/μs V _D = 0,67 · V _{DRM} | 1 μs 2 μs | |
| (di/dt) _{cr} | T _{vj} = 125 °C | 150 A/μs | |
| t _q | T _{vj} = 125 °C | typ. 80 μs | |
| I _H | T _{vj} = 25 °C; | typ. 150 mA; max. 250 mA | |
| I _L | T _{vj} = 25 °C; R _G = 33 Ω | typ. 300 mA; max. 600 mA | |
| V _T | T _{vj} = 25 °C; I _T = 200 A | max. 1,95 V | |
| V _{T(TO)} | T _{vj} = 125 °C | 1 V | |
| r _T | T _{vj} = 125 °C | 4,5 mΩ | |
| I _{DD} ; I _{RD} | T _{vj} = 125 °C; V _{DD} = V _{DRM} ; V _{RD} = V _{RRM} | max. 15 mA ³⁾ | |
| V _{GT} | T _{vj} = 25 °C; d. c. | 3 V | |
| I _{GT} | T _{vj} = 25 °C; d. c. | 150 mA | |
| V _{GD} | T _{vj} = 125 °C; d. c. | 0,25 V | |
| I _{GD} | T _{vj} = 125 °C; d. c. | 6 mA | |
| R _{thjc} R _{thch} T _{vj} ; T _{stg} | cont. sin. 180 rec.120 } per thyristor/per module | 0,65 °C/W / 0,33 °C/W 0,69 °C/W / 0,35 °C/W 0,73 °C/W / 0,37 °C/W 0,2 °C/W / 0,1 °C/W – 40 ... +125 °C | |
| V _{isol} M ₁ M ₂ a w | a. c. 50 Hz; r.m.s.; 1 s/1 min to heatsink } SI units / US units to terminals } approx. | 3600 V ~ / 3000 V ~ 5 Nm/44 lb. in. ± 15 % ⁴⁾ 3 Nm/26 lb. in. ± 15 % 5 · 9,81 m/s ² 120 g | |
| Case | → page B 1 – 93 | SKKT 41: A 5 SKKH 41: A 6 SKKH 42: A 47 | SKKL 42: A 59 SKKT 42: A 46 SKKT 42B: A 48 |

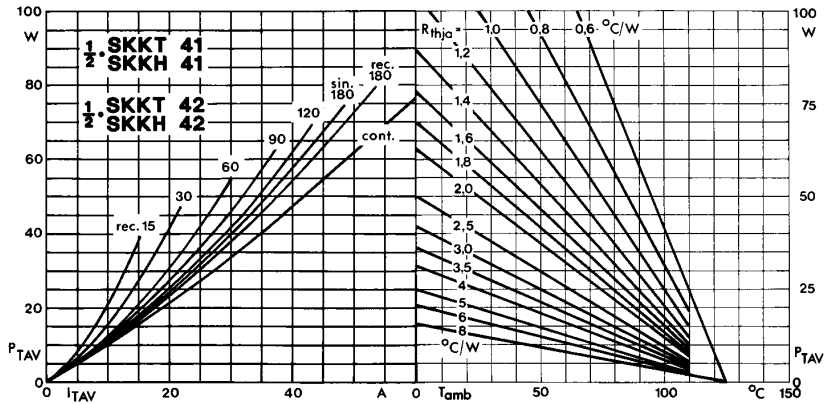


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

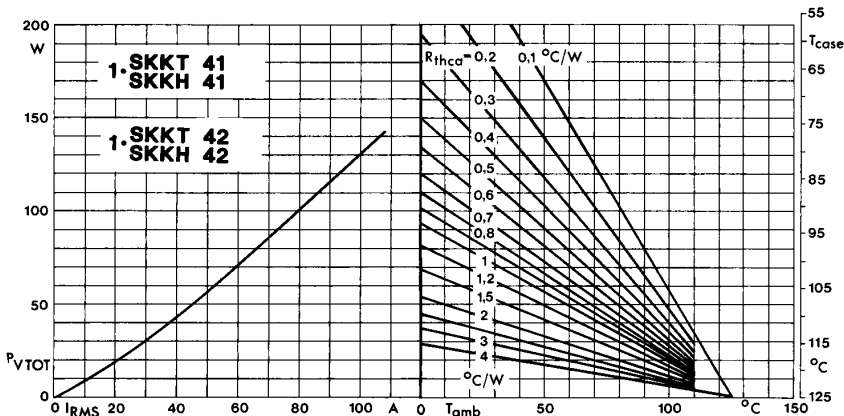


Fig. 2 Power dissipation per module vs. rms current and case temperature

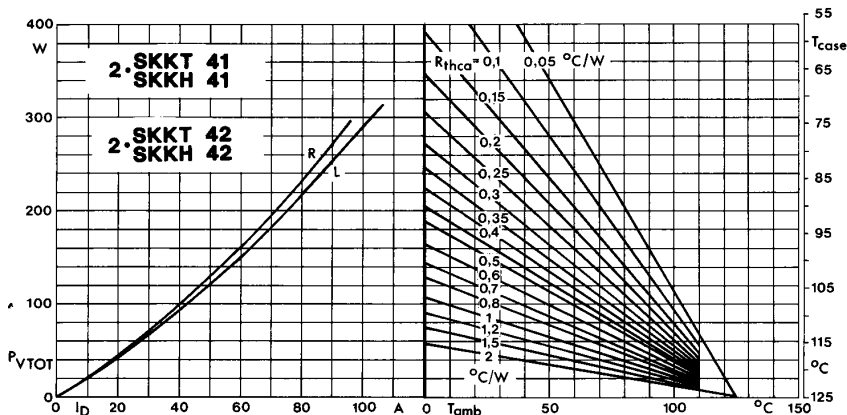


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

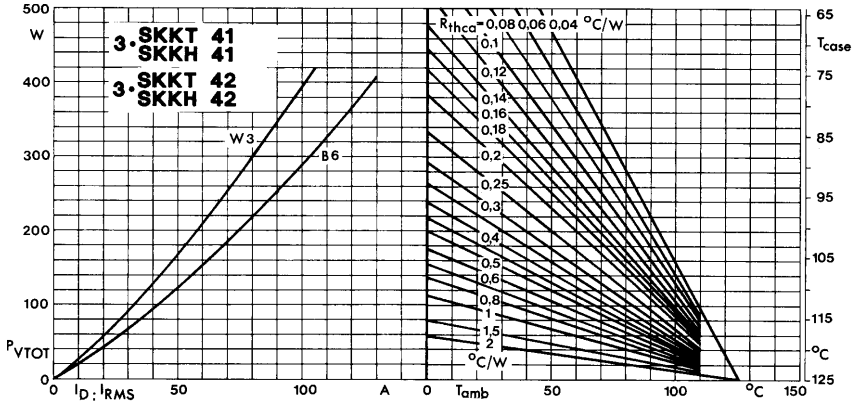


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

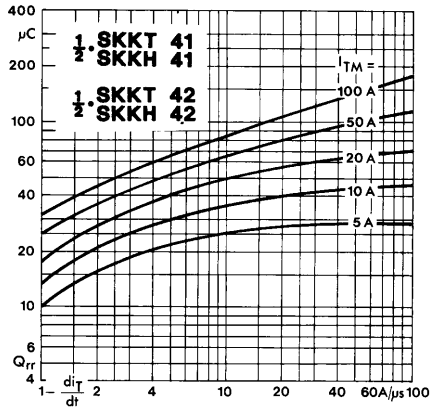


Fig. 5 Recovered charge vs. current decrease

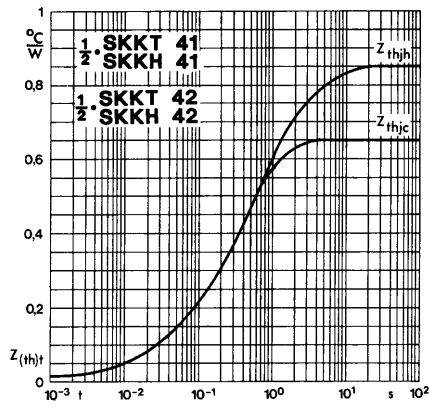


Fig. 6 Transient thermal impedance vs. time

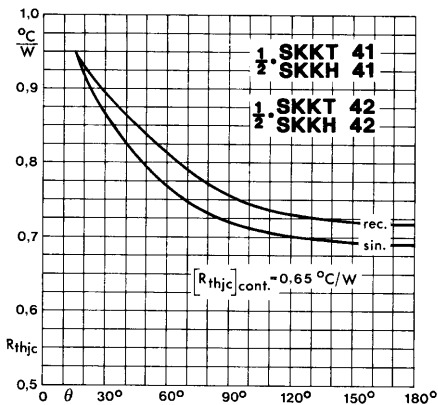


Fig. 7 Thermal resistance vs. conduction angle

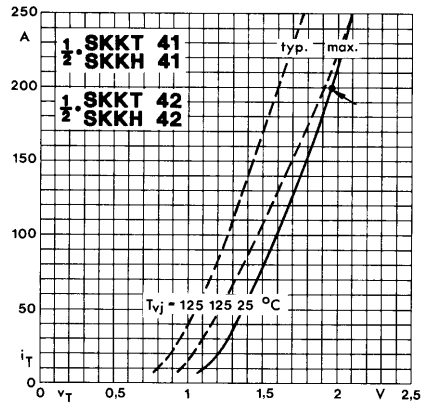


Fig. 8 On-state characteristics

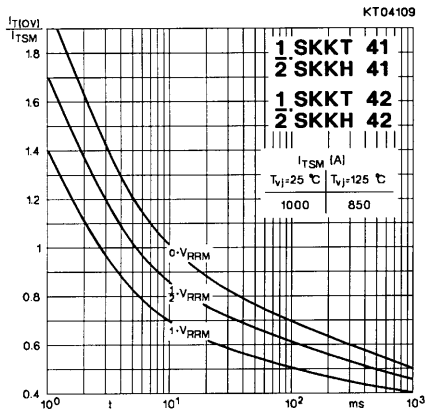


Fig. 9 Surge overload current vs. time

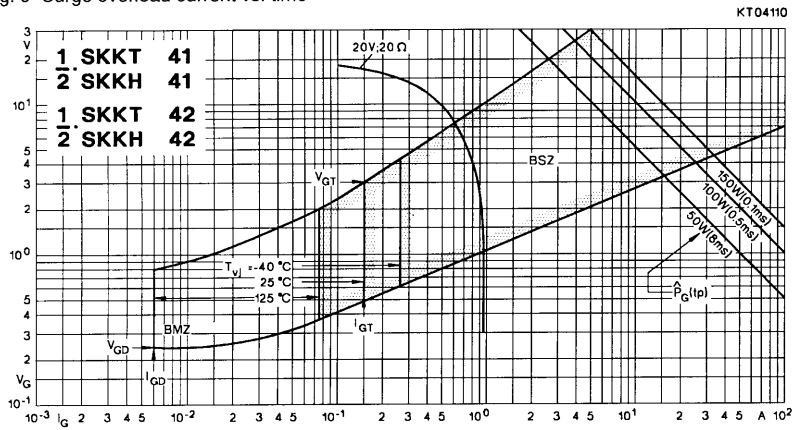


Fig. 10 Gate trigger characteristics